

FOUR NEW SPECIES OF *STIPA* (POACEAE)

JOYCE W. VICKERY†

(Accepted for publication 2.11.1979)

ABSTRACT

Vickery, Joyce W. (National Herbarium of New South Wales, Royal Botanic Gardens, Sydney, Australia 2000) 1980. *Four New Species of Stipa*. *Telopea* 2 (1): 11-15.—Four new species of *Stipa* are described: *S. curticoma*, *S. gibbosa*, both from South Australia and Victoria, *S. exilis* from South Australia and Western Australia and *S. petraea* from South Australia.

INTRODUCTION

The descriptions of four new species published in this paper represent only a small part of the large amount of work on the genus *Stipa* left in manuscript and note form by Dr Joyce Vickery. The remaining new taxa require further study to relate them to the already named taxa recognized by Vickery. Therefore it seems desirable to make these names available now and appropriate to include them in this issue of *Telopea* dedicated to Dr Vickery.

The treatment follows Dr Vickery's original manuscript closely although, since Latin descriptions were not included, these have been kindly supplied by Karen Wilson after I extracted what I regarded as significant points from the descriptions.

I have done as little interpretation as possible and have confined changes to re-ordering the manuscripts, rationalizing the often multiple figures noted for dimensions, occasionally supplying missing information from the specimens and attempting to convert the original manuscripts, written at different times, to the current format required by this journal.

While the recognition, circumscription and description of the taxa are credited to Dr Vickery, I am responsible for any shortcomings in conveying the ideas and information.

S. W. L. Jacobs

Stipa curticoma Vickery, sp. nov.

S. aristiglumis F. Muell. affinis sed differt: glumis longioribus; lemmati longiore, callo longiore subrectoque.

HOLOTYPE: South Australia: Mt Lofty Ranges, 3 km S. of Mt Barker, *M. D. Crisp* 884, 13.10.1974 (CBG 058899).

Erect caespitose perennial 50-100 cm high, with extravaginal innovations from a closely contracted rootstock. Culms rather stout, striate, rigid, almost smooth, about 3-noded, the nodes densely retrorsely pubescent. Sheaths close around the culms or upwards at length becoming somewhat loose, often almost as long as the

† Died 29 May 1979

internodes, striate, smooth or minutely scaberrulous, upwards ciliate on the outer margin. Ligule short, 1–1.5 mm, truncate, ciliate. Blades mostly flat *in vivo*, becoming loosely inrolled on drying especially upwards, acuminate, 20–30 cm long, 3.5 mm wide near the base, striate and smooth or minutely scabrous or more rarely distinctly scabrous or distantly hirsute on the lower surface with manifest nerves, rather strongly grooved and finely scabrous on the upper surface, with somewhat thickened auricles at the base. Panicle elongate, up to 30 cm long, more or less lanceolate, loose and loosely spreading, with distant fascicles or unequal branches up to 10 cm long, again divided, the spikelets mostly towards the ends of the branches and branchlets, the main axis terete, striate, finely scaberrulous, the branches, branchlets and pedicels slightly flattened and angular, scabrous on the angles. Spikelets greenish and usually more or less strongly tinged with purple. Glumes rather broad and somewhat curved around the floret, acuminate, usually more or less scabrous-pubescent, firm, the lower 14–16 mm long, 3-nerved, the upper 5-nerved with the outermost nerves rather short and obscure, 10–13 mm long. Lemma 7–9 mm long including the 2–2.5 mm long callus, fusiform, minutely lobed, rather lightly clothed with erect, fine, white hairs which may tardily become more or less fulvous at maturity, these usually diminishing upwards towards the more or less clearly defined scabrous neck except for a fairly distinct coma of hairs about 0.5–1 mm long around the base of the column, the straight or very slightly retrorse acuminate callus densely clothed with fine white hairs, the awn 4.5–6 cm long, the column twice bent, moderately stout, scabrous-pubescent with rather short, stiff, erectly spreading hairs, the bristle scabrous. Palea as long as the lemma, with a band of hairs down the minutely granulate centre of the back. Anthers about 4 mm long, slightly fimbriate.

DISTRIBUTION: From the Grampians in Victoria and in the Southern Lofty and Kangaroo Island areas of South Australia.

SPECIMENS EXAMINED: VICTORIA: Grampians, Mt Arapiles, A. C. Beaglehole 29667, 20.11.1968 (Herbarium of A. C. Beaglehole).

SOUTH AUSTRALIA: Southern Lofty Region: Modbury, c. 15 km NE. of Adelaide, A. G. Spooner 1274, 24.10.1970 (AD); Near Highbury Hotel, c. 13 km NE. of Adelaide, D. N. Kraehenbuehl 824, 22.10.1942 (AD); Mt Lofty Ra., Highbury, T. Smith 719, 1.10.1967 (AD); Mt Lofty Ra., Highbury, Sassafras Drive, c. 15 km NE. of Adelaide, A. G. Spooner 1318, 12.10.1970 (AD); Mt Lofty Ra., Hope Valley, c. 10 km NE. of Adelaide, J. B. Cleland 15.11.1947 (AD 96323199); Black Hill, c. 12 km ENE. of Adelaide, K. Czornij 253, 21.11.1968 (AD); Adelaide Plain, Beaumont Common, T. J. Smith 1730, 28.8.1969 (AD); Adelaide Plains, Burnside district, Beaumont Common, J. B. Cleland 28.10.1928 (AD 96323194) and 24.10.1942 (AD 96324041); Adelaide Plains near Plympton, c. 5 km SW. of Adelaide, T. J. Smith 1224, 19.10.1968 (AD); Beaufaeres, between Hope Valley Reservoir & Torrens Creek, A. G. Spooner 2718, 21.2.1973 (AD); Adelaide Hills, Belair, F. Hilton 13.10.1944 (ADW 44019); Belair, C. M. Eardley 10.19.1935 (ADW 2424); Claremont Hills, 11.1925 (ADW 278 in part); Waite Institute, F. Hilton 10.9.1946 (ADW 43836) and 4.11.1953 (NSW 116995 being duplicate of ADW 43831); Waite Institute grounds, C. M. Eardley, 10.11.1931 (ADW 251); Adelaide foothills, Neiberby, F. Hilton 19.9.1944 (ADW 44015); Mt Lofty Ra. National Park, c. 6 km SE. of Adelaide, J. B. Cleland 17.12.1939 (AD 96323241); Mt Lofty Ra., Mt Barker, J. B. Cleland 4.12.1943 (AD 96323219) and 23.11.1946 (AD 96323197); Clarendon, 6 miles [10 km] SE. of O'Halloran Hill, F. Hilton 23.11.1945 (NSW 116993 being duplicate of ADW 43877); Mt Lofty Ra., Cox's Scrub National Park, c. 55 km SSE. of Adelaide, B. C. Crisp 121, 30.10.1971 (AD); Encounter Bay, Halls Creek, about 5 km W. of Victor Harbour, J. B. Cleland 5.1.1940 (AD 96323120). Kangaroo Island: Kangaroo I., Kingscote, J. B. Cleland 23.11.1945 (AD 96323120).

In habit and general appearance *S. curticomis* resembles some South Australian specimens of *S. blackii* but differs in that the coma of hairs at the apex of the lemma is very short. It differs from *S. eremophila* in its taller habit, essentially flat leaf-blades, mostly white (only tardily fulvous) hairs on the lemma, much shorter bristle and usually broader glumes. It differs from *S. flavescens* in its broader glumes, stouter awn with the column stiffly scabrous-pubescent (not very finely pubescent to pilose), and shows no particular preference for maritime or estuarine habitats. It differs from *S. aristiglumis* in its longer and almost straight callus, and appears to occur in quite different edaphic and geographic situations. It differs from *S. gibbosa* in its longer and more or less evenly fusiform lemma, usually longer awn, and usually narrower palea with a band of hairs down the middle of the back.

Stipa exilis Vickery, sp. nov.

S. mundulae J. M. Black affinis sed differt: laminis foliorum minute pubescentibus pilis longioribus interspersis, venis abaxialibus manifestis; ligula brevior obtusiorque; arista graciliore breviorque; glumis brevioribus, lemmati brevior.

HOLOTYPE: South Australia: Northern Yorke Peninsula, Section 155, Hundred of Wiltunga (about 140 km NNW. of Adelaide), *B. Copley* 799, 21.10.1966 (AD 9670326).

Rather small, densely tufted perennials 40 cm high, with mostly basal leaves from intravaginal innovations. Culms erect, very slender, simple, about 2-noded, firm, grooved, glabrous, remotely scaberrulous to scabrous pubescent. Nodes finely retrorsely pubescent. Sheaths tight around the culms, often as long as the internodes, scabrous pubescent, ciliate along the outer margin, striate with manifest nerves. Ligule firmly membranous, about 0.5 mm long, obtuse rather than abruptly truncate, usually with a tuft of hairs beside the lobes of the sheath. Blades very slender to almost capillary 5–25 cm long, convolute and terete or angular-terete, mostly scabrous pubescent to lightly hirsute on the outer surface, few nerved with the nerves quite manifest on the outer surface, erect or at length recurved, narrower than the apex of the sheath, about 0.5 mm in diameter, the inner surface pubescent. Panicle 5–15 cm long, rather few-flowered, at first loosely contracted, at length daintily spreading, with sparsely branching scabrous branches and scabrous pedicels, the axis almost smooth to sparsely scabrous. Spikelets rather small, rather narrowly gaping. Glumes membranous, narrow, very unequal, pale greenish or fringed with purple, the lateral nerves not extending to the tip, lightly scabrous pubescent; the lower 8–11 (–12) mm, very acuminate, 3-nerved, the upper 7–8 mm, acute, 5-nerved near the base. Lemma 4.5–5.5 mm including the 1–1.5 mm long callus, very minutely to shortly lobed, slender, lightly clothed with appressed white hairs, at first pallid, at length dark brown and finely scabrous. The awn capillary, 3.5–5.5 (–6) cm long, almost straight or lightly twice bent, finely scabrous or scabrous-pubescent. Palea about as long as the lemma, with a band of similar appressed white hairs down the centre of the back. Anthers about 1–1.5 mm long.

DISTRIBUTION: Murray, Northern Lofty, Yorke Peninsula and Eyre Peninsula regions of South Australia and in the South West of Western Australia.

SPECIMENS EXAMINED: SOUTH AUSTRALIA: Murray Region: Kinchina, *J. B. Cleland* 9.1922 (NSW 117042); 6 miles [10 km] W. of Murray Bridge, *R. L. Crocker* 23.10.1943 (CANB 12169); E. of Monarto (South), 12 miles [19 km] W. of Murray Bridge, *F. Hilton* 7.12.1954 (ADW 44134); Chaunceys Line [c. 20 km SW. of Murray Bridge], *J. B. Cleland* 30.11.1959 (AD 96806244), and 25.11.1949 (AD 96625059), and 30.11.1955 (AD 96806242), and 12.10.1938 (AD 96625087), and 25.9.1954 (AD 96625089), and 22.9.1962 (AD 96330048), and 12.10.1938 (ADW 44024); Chaunceys Line Reserve, *F. M. Hilton* 1011, 9.10.1954 (ADW), and 1008, 9.10.1954 (ADW 44152 and NSW 117044 duplicate of ADW 44176); Tailm Bend, *F. Hilton* 12.12.1953 (ADW 44084); Ki Ki, 30 miles [48 km] SE. of Tailm Bend, *F. Hilton* 12.10.1953 (ADW). Northern Lofty Region: c. 5 km W. of Bute (old Mona railway yard) [about 130 km NNW. of Adelaide], *B. Copley* 494, 14.8.1966 (AD); South Hummocks Range, *B. Copley* 3228, 25.10.1970 (AD). Yorke Peninsula: between Artherton and Maitland, *B. J. Blaylock* 1046, 6.10.1968 (AD); c. 11 miles [18 km] SSW. of Port Broughton in relict of mallee scrub, *S. T. Blake* 16848, 28.8.1946 (BR1). Eyre Peninsula: Hambridge National Park [c. 140 km N. of Port Lincoln] *D. N. Krachenbuehl* 2070, 8.10.1966 (AD); interdune flat between Prominent Hill and S. edge of Hambridge Reserve *D. E. Symon* 4118, 8.10.1966 (ADW); 15 miles [24 km] from Poochera towards Minnipa, Eyre Highway, *E. M. Canning* 2277, 30.8.1968 (CBG, NSW); Hincks National Park, Blue Range, Oak Amphitheatre, *C. R. Alcock* 222, 7.10.1968 (AD); Hincks National Park, Eagle Nest Flat, W. of Blue Range [about 100 km NNE. of Port Lincoln], *C. R. Alcock* 2408 in part, 12.10.1968 (AD 96922396 in part); Hincks National Park, *D. E. Symon* 6544, 11.10.1968 (ADW), and 6256, 9.10.1968 (ADW); Hincks National Park, Eagle Flat, in the dune complex of the Blue Range, *J. R. Wheeler* 1080, 12.10.1968 (AD); Flora and Fauna Reserve, Hundred of Flinders, c. 15 km SSE. of Port Lincoln, *R. L. Specht* 2636, 10.11.1960 (AD).

WESTERN AUSTRALIA: 4 km E. of Needilup, *K. Newbey* 4919, 10.11.1975 (PERTH).

Differs from *S. mundula* in its intravaginal habit, rather finer, pubescent to hirsute leaves with the nerves manifest on the outer surface, its very obtuse rather than truncate ligule, more slender, capillary, and shorter awn, shorter glumes and lemma. The spikelets and lemmas resemble those of *S. multispiculis* but the short slender tufted habit of *S. exilis* is very different.

Stipa gibbosa Vickery, sp. nov.

S. aristiglumis F. Muell. affinis sed differt: flosculo dorsaliter distincte gibboso, ad apicem aequaliter decrescenti; planta plerumque parviore.

HOLOTYPE: South Australia: Burnside district, Beaumont Common, about 6 km SE. of Adelaide, *J. B. Cleland* 11.10.1942 (AD 96323216).

Erect caespitose perennial about 60–90 cm high with extravaginal innovations from a closely contracted rootstock. Culms about 3-noded, terete, striate, minutely scaberulous between the nerves but otherwise smooth, the nodes retrorsely pubescent. Sheaths at first moderately tight around the culm or at length becoming somewhat loose, strongly striate, minutely scaberulous on the sides of the nerves, otherwise smooth and glabrous, upwards slightly ciliate along the outer margin. Ligule short, about 0.5 mm, truncate, densely ciliate. Blades linear, attenuate to the acuminate apex, at first \pm flat, becoming loosely convolute or involute on drying, 20–30 cm long, 1–5 mm wide near the base, almost as wide as the apex of the sheath and somewhat auricular-thickened, manifestly nerved and loosely scabrous on the outer surface, or barely lightly hirsute, the inner surface conspicuously nerved and rather shallowly grooved between the nerves, minutely scabrous chiefly on the sides of the nerves, very firm. Panicle loose, often with most of the branches falling to one side, not densely flowered, 5–25 cm long, 3–5 cm wide neglecting the awns, rather sparsely branched with the spikelets towards the ends of the branches; the main axis terete, sparsely scabrous, the branches and especially the pedicels more or less angular or flattened and strongly scabrous especially on the angles. Spikelets pale greenish. Glumes rather broad and curving around the floret, acute to acuminate, firm, scabrous, unequal; the lower 11–17 mm long, manifestly 3-nerved; the upper 8–13 mm long, manifestly 5-nerved. Lemma 4.5–6 mm long (including the callus) and about 1.5 mm in diameter, narrowly obconical-oblong, narrowed at the neck, somewhat gibbous, closely clothed with erect white, to at length fulvous hairs and with a distinct coma of short hairs about 1 mm long at the apex, brownish to at length blackish, granulate, with a short, rather blunt callus 1–1.5 mm long densely clothed with hairs, and retrorsely curved. The awn 3–5 cm long, twice bent; the column about 1.5–2 cm long, scabrous; the bristle short (usually about as long as the column). Palea as long as or longer than the lemma, with broadly curving smooth sides and a flat granulate (otherwise glabrous) back between the nerves, rather abruptly narrowed into a subacute fimbriate apex. Lodicules spatulate, about 1 mm long. Anthers about 3 mm long, fimbriate. Grain oblong, slightly gibbous above, about 3.5 mm long, about 1–2 mm broad, obtuse, with an embryo about one-third as long.

DISTRIBUTION: From Victoria and the Northern Lofty and Southern Lofty Regions of South Australia.

SPECIMENS EXAMINED: VICTORIA: 4.7 km from Dimboola toward Nhill, *E. M. Canning* 2972, 11.11.1969 (CBG 067316 in part); 1 mile [1.5 km] S. of Laverton, *J. Cullimore* 125, 22.11.1967 (AD ex MEL; PERTH ex MEL).

SOUTH AUSTRALIA: Northern Lofty Region: Bundaleer Hills [c. 60 km SW. of Port Pirie], *J. M. Black* 23.11.1925 and 11.xi.1927 (AD); Bundaleer, c. 41 km N. of Clare, *J. B. Cleland* 28.11.1930 (AD 96323249); Spalding, [c. 158 km N. of Adelaide], *J. M. Black* 21.11.1925 (AD); c. 91 m E. of Snowtown Hospital [c. 130 km NNW. of Adelaide], *B. Copley* 987, 25.12.1966 (AD); Black Springs, 17 miles [27 km] S. of Burra, *D. Symon* 12.12.1953 (ADW 43833); E. of Mortlock Research Station, Mintaro, *D. E. Symon* 3930, 16.12.1965 (ADW; CANB; NSW). South Lofty Region: Adelaide Agricultural High School, 7.11.1932 (ADW); Beaumont Common, c. 6 km SE. of Adelaide, *J. B. Cleland* 23.10.1935 (AD 96323196), and 3.11.1940 (AD 96323292); Halls Creek, Encounter Bay, *J. B. Cleland* H70, 16.11.1930 (K).

From *S. aristiglumis* it differs in the distinctly dorsally gibbous floret (instead of \pm uniformly fusiform narrowing evenly towards the apex), and its usually being a smaller plant. From *S. blackii* it differs in the very short corona of hairs at apex of lemma and more distinctly gibbous lemma. From *S. setacea* it differs in the truncate ligule, short \pm obtuse callus, and palea not deeply furrowed down the back.

Stipa petraea Vickery, sp. nov.

S. juncifoliae Hughes affinis sed differt: foliis aliquantulo minus rigidis; ligula brevior, obtusa, dense ciliata; axibus inflorescentiarum ramisque pedicellisque scabris; glumis in nervis leviter scabris; lemmati sublongiore, paulo latiore fusiformi, pilis distincte fulvescentibus vestita.

HOLOTYPE: South Australia: Flinders Ranges: Brachina Gorge, Oraparinna National Park, western portion, *J. Z. Weber* 2577, 18.9.1971 (AD).

Cacspitose perennial up to 75 cm high with extravaginal shoots, at first covered with elongate pubescent cataphylls, from a closely contracted rootstock. Culms erect, smooth, glabrous, rigid, about 3-noded, the nodes pubescent or glabrescent, not strongly exserted. Sheaths firm, close around the culm, striate, smooth ciliate on one margin especially upwards. Ligule short, 0.5–1 mm long, obtuse or truncate, more or less chartaceous, densely ciliate with long white hairs at the orifice and these continued up the inner surface of the base of the blade for about 1 cm. Blades linear, convolute, more or less erect and rather rigid, long attenuate into a fine point, up to 70 cm long, glabrous, smooth and lightly striate on the outer surface, densely long scabrous and furrowed on the inner surface, long hairy on the inner surface for a short distance about the ligule. Panicle loose or loosely contracted, 15–20 cm long, the main axis terete and, together with the branches and pedicels, the branches fasciculate, unequal, the longer up to 7 cm long and again branched, loosely flowered with the ultimate branches 2–4-flowered, the pedicels 1–10 mm long. Glumes pallid or purplish, often somewhat shining, narrowly gaping, rather broad to near the apex, subequal or a little unequal, 11–13 mm long, acuminate, membranous, moderately strongly nerved, lightly scabrous on the nerves and sometimes minutely scabrous between them; the lower 3-nerved with the lateral nerves extending about 3/4 way to the apex; the upper 5-nerved. Lemma linear-fusiform, rather thin, very distinctly bilobed at the apex with linear teeth about 1.5 mm long, about 8–9.5 mm long excluding the teeth but including the rather stout, pointed, densely hairy 1–1.5 mm long callus, pale brown, closely covered with appressed white to tawny hairs, the uppermost extending into a short corona about 2.5 mm long above the insertion of the awn, 5-nerved. The awn straight to loosely bigenulate, about 4–5 cm long; the column 2–2.5 cm long, moderately slender, finely scabrous-pubescent to shortly pubescent, loosely twisted; the bristle scabrous, straight. Palea about as long as the lemma, oblong, shortly bilobed, similarly densely covered with tawny hairs in a broad band down the back. Anthers about 5.5 mm long, minutely penicillate.

DISTRIBUTION: Apparently endemic to the Flinders Ranges in South Australia, occurring in the Flinders Ranges and the Eastern Region close to the ranges.

SOUTH AUSTRALIA: Eastern Region: Mt Chambers Gorge [N. tip of Mt Frome between Flinders Range and Lake Frome, 33° 58' S, 139° 17' E], *R. Filson* 3476, 7.10.1960 (MEL). Flinders Range: Flinders Range, *E. H. Ising* 10.1918 (ADW 44065, 44068); Oraparinna National Park, rocky walls of Brachina Gorge, *D. E. Symon* 2558, 8.10.1971 (ADW, CANB); rocky cliffs, Horrocks Pass, Flinders Ranges, *F. Hilton* 12.9.1951 (ADW 44045, 44044); Oratunga Creek near Moolooloo Section, NNW. of Blinman, *E. H. Ising* 1.10.1918 (AD). Uncertain locality: Cudnaka, *F. Mueller* (MEL 60684).

Very similar to *S. juncifolia* Hughes but differs in the slightly less rigid leaves, the shorter plants, the shorter, obtuse, densely ciliate ligule, the axis, branches and pedicels scabrous, the glumes lightly scabrous on the nerves, the rather longer lemma rather more broadly fusiform and covered with hairs which become distinctly tawny.